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AUTHOR Byers, Burton H.
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ABSTRACT

The testing of proficiency in interpersonal communication is a challenging problem in an age in which people from all over the world, speaking different languages and speaking the same languages differently, must produce useful exchanges of cognitive, behavioral, and affective information. The beginnings of a system for testing and teaching interpersonal communication, based on the ability to produce desired outcomes rather than on language ability, are described. The outcomes of purposeful dyadic communication are quantifiable, can be criterion referenced, and, in some versions, are machine scoreable. "DyComm" measures communication performance in three different roles: source, receiver, and interchange member. Scoring is right-minus-wrong. There is a bonus for producing correct information and a penalty for producing wrong information. (EE)

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TESTING INTERPERSONAL COMMUNICATION PERFORMANCE

By

Burton H. Byers
Associate Professor of Communication
University of Hawaii
Honolulu, Hawaii 96822

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TESTING PROFICIENCY IN INTERPERSONAL COMMUNICATION

By Burton H. Byers
Associate Professor
Program in Communication
University of Hawaii
Honolulu, Hawaii 96822
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Member of Division II

ABSTRACT

The testing of proficiency in interpersonal communication is a challenging problem in an age in which people form all over the world, speaking different languages and speaking the same languages differently, must produce useful exchanges of cognitive, behavioral and affective information. The beginnings of a system for testing and teaching interpersonal communication, based on the ability to produce desired outcomes, rather than on language ability, is described. Plans are well advanced to test the system using native speakers and English learners at the University of Hawaii, in Singapore, Thailand, New Guinea, New Zealand and Fiji, both in face-to-face and in satellite-interposed situations.

Burton H. Byers
Program in Communication
George Hall 335
University of Hawaii
Honolulu, Hawaii 96822

NEED

The people movers, jet aircraft, are bringing people from all over the world into face-to-face communication situations. The message movers, satellites, laser beam light carrying "pipes" and all the rest, are making it increasingly common for people all over the world to communicate person to person, satellite or cable-interposed. How well can we function in these rapidly changing communication environments?

There is a need for instruments which will measure the communication outcomes of interpersonal interchanges, both between persons of the same cultural background and between and among persons coming from different cultures and sub-cultures.

SOME DEFINITIONS

In stating the need for the kinds of communication tests to be described here, I want to distinguish between product measurement and outcomes measurement. Since these terms are to some extent my own invention, they require definition, preferably operational.

I use the term product measurement as a name for the centuries old practice of examining messages. The product, or message, could be a novel, an opera, a TV commercial, a lecture. It could be a single utterance of an applicant in a job interview, or it could be all of the utterances of a series of successful and unsuccessful job applicants. We could get critical judgments about the utterances: too loud, too soft, monotone, lively. We could count the words; compute type-token ratios; make content analyses; get a picture of some characteristics of the messages with a sonograph. We can apply all sorts of measures to the analysis of the message(s). I choose to call this product measurement.

Suppose we wish to evaluate a lecture on Hawaiian history given to 500 students. We might employ expert judges to rate the lecture on content, style and delivery. Clearly this would be product measurement.

Now suppose that the lecturer had prepared 500 packets of materials to supplement his lecture on Hawaiian history, and that he offerred these during his lecture, suggesting that the students pick them up as they left. Counting the packets of materials that remained after the students had departed would be a form of what I am calling outcomes measurement. The observable, quantifiable behavior of the target audience is used to measure the effectiveness of the communication.

The purpose here is to describe an outcomes measure of dyadic communication performance. I believe that outcomes measurement is potentially more useful than product measurement, and I believe that we have neglected the development of such instruments. My experience indicates that the distinction between measuring product and outcome is difficult to grasp, but of great importance.

I believe also that product measurement is more useful when it follows outcomes measurement. For example, if, after the lecture on Hawaiian history, all of the packets of materials had been picked up and students had asked for more, we might want to examine the lecture in search of what made it so effective. If on the other hand most of the packets remained, we might want to examine the lecture in search of what caused it to fail.

DESCRIPTION

Several years ago a number of persons at the University of Hawaii began developing instruments for measuring the outcomes of dyadic communication interchanges. The particular instrument I am describing is called "DyComm" after "dyadic communication." Since new versions of its various sub-tests

have been appearing at the rate of 2 to 5 per semester, the version described in this paper is only a phase in a continuing process of research and development.

The principal generator of the test ideas is Dr. Paul Heinberg. Drs. L. S. Harms and Terry Welden along with this writer have made important contributions. Numerous students have generated versions of this form of measurement, as well as gathering data and analyzing the performance of the several versions.

DyComm is a series of item-systems. Each item-system presents two pages of printed material, to two persons, who follow instructions emanating from an audio script, tape recorded or read or extemporized by the test administrator. After each item system, the persons being tested change partners, so that the outcomes being tested are produced while working with several partners. Partners work in real time as opposed to off time. The audio script allows only a specified time, from 25 to 45 seconds, for working on each item system.

While the communication tasks vary from one version to the next, they are grouped into five categories. The first of these is word recognition. The matching test booklets have, on each page, 20 words or series of words. Half of these are the same on both booklets, half are different. Two persons sit opposite, looking at their test booklets and at each other, but not at the other partner's booklet. They follow the instructions given through the audio script, which also times each item-system.

One of the persons being tested reads the first word. His partner signals "same" or "different." If same, both persons mark that item. If different, both persons leave that item blank. After the first page, the dyads shift so that each person has a new partner. This procedure continues with each page of the test.

Each of the five sub-tests has 8 pages of 20 items, making a total of 800 items. Each person interacts, over the 40 pages of the test, with from 5 to n other persons, who may be persons like himself, or persons selected from other populations: teachers - learners; EFL speakers - ESL speakers, etc.

I have described the first category of communication tasks: speak so that n respondents can recognize the words, and recognize the words spoken by n speakers. The second is called "sentence processing." This task consists of processing the meaning of sentences. The items on each page are sentences, none of which have the same words, but half of which mean about the same thing, and half of which are different, semantically or syntactically.

The third category or sub-test is called "instrumental." This task is to give-receive directions on how to do some psychomotor task.

The fourth sub-test is called "Affects." This task calls on the persons being tested to give off affective information and to interpret the affective information given off by others. The particular affects in this version of DyComm are serious - not serious, older - younger (superordinate - subordinate), and friendly - unfriendly. Although this test is workable on a non-verbal basis, this version requires the giver of the information to speak a carrier phrase, which may be "hello" or "I want to see you now," or "This is my book."

The fifth sub-test is called "Problem Solving." In working this task, partners interchange information to discover the answers to problems. The information consists of four rules, two at the top of each matching booklet. The 20 items on each page consist of trigrams, in this version three digits on the first four pages, and three words on pages 5 - 8. Half of the trigrams conform to all four of the rules.

TEST PROCEDURES

The procedures for administering DyComm are novel. They usually produce a high level of concentration plus a good bit of excitement. The procedures actually produce a test that almost all students enjoy taking.

Chairs for the persons taking the test are arranged in an inner circle and an outer circle. Test dyads, which work together on each item-system, face each other. While working on one item-system, the partners are the same. After the completion of each item-system, persons sitting in the inner circle move one chair to the right, so that a new set of dyads is created.

Thus, every 25 - 45 seconds during the working of a sub-test, there is movement and a settling down to work with new partners. This yeilds a building up of excitement, without apparent increase in tension.

The audio tape begins with complete directions, explicit enough so that 10 year olds follow the directions without much assistance, and yet sophisticated enough so that adults are not offended by the simplicity of the audio script.

DYCOMM AS COMMUNICATION TRAINING

Teaching by the use of test materials is novel; the more acceptable notion is that test materials should be kept under tight security. If a test measures what a student should know and/or be able to do, then the student should certainly know in advance what the test requires. And if the test does not measure what the student is expected to know or to be able to do, what is its value?

To go one step farther: if the testing materials are valid, then the ability to make a high score on the test equates with the knowledge or ability that is required. Students trained to make high scores on the test know, and are able to do, whatever it is that the training is about.

The DyComm materials are interchangeable for testing-training because the item systems are interpersonal communication, in a variety of roles, with a variety of persons, for a variety of purposes. These testing materials become teaching materials when learners are provided immediate knowledge of success or failure.

An example is drawn from DyComm III, Instrumental, or Giving-Receiving Directions, an earlier version tried in 1970. Students in dyads were given identical grids of circles. The student serving as tutor had a grid with five x five circles filled in and connected by lines. He was given ten seconds to tell his partner which circles to fill in, and where to draw the connecting lines, so as to make the designs match. This was the pre-post test.

The intervening training utilized the same grids of circles, but students drew their own designs, and, working in groups of four or five, described their designs in ten seconds, and then talked with the group about the resulting responses to the descriptions.

In several trials of this design, means of the scores go up, standard deviations go down, and there is significant improvement. In one trial, the pre-test was done at the end of a class session on Monday; the training session occupied about 20 minutes on the following Wednesday, and the post test was run on the following Friday. The mean gain was 5.09, $t = 8.13$, $p < .002$.

An even more encouraging development is that it appears that the better communicators among the persons being tested use the system to raise the scores of the less skilled communicators in the group.

This phenomenon was observed while using two different versions of Sub-test II, Sentence Processing, in 50 minute trials with 36 students. The

sequence was first, training, using one version of the test; second, the administration of a second version of the test; and finally, a second trial using the same version of the test materials.

The papers from the first administration of the test were divided into top third and bottom third according to scores. These were matched with the papers produced by the same people during the second administration of the same test.

What seems to have happened is that some of the students achieved a high level of performance during the first training period, and that they passed this along to their slower partners during the first administration of the test.

The mean gain for all students from the first to the second administration of the test was 5.80, $t = 7.07$, $p < .002$. Of the third who scored highest on the first trial, the mean gain in the second trial was 3.00, $t = 2.03$, which falls short of significance at the .05 level. This group had already achieved a high level of performance. Of the bottom third on the first trial, the mean gain in the second trial was 8.14, $t = 7.41$, $p < .002$. This group was in effect being tutored by the top group during the first administration of the test.

The change scores of the high group and low group on the first administration of the test with their performance on the second trial yeilds $t = 2.84$, $p < .01$.

VALUES

In the DyComm system for testing-teaching interpersonal communication, there is some planning of the values which will be learned by those working

their way through the system. Here are three values, planned but not explicity stated:

1. The DyComm system pays off for the creating of understanding within the dyads. The two partners working together on any page of DyComm get the same score. It is not possible to make a higher score than your partner makes. Thus the value of cooperation as opposed to competition is built into the system. Individuals can win only if their several partners win also.
2. The DyComm system pays off for effective communication with a variety of partners. Depending on the mix of testees, the instrument can provide special kinds of information.
3. The DyComm system penalizes the giving of wrong information. In the real world, when one person asks information from another, the other person can say "I don't know," or, if he doesn't know the relevant information, he can pretend that he does, and invent answers that are probably incorrect. Learners working their way through DyDomm are penalized for giving wrong information; not penalized for giving no information; and receive a pay-off for giving correct information.

CONCLUSION: SOME SPECIAL FEATURES

DyComm and other tests being developed at the University of Hawaii measures the <u>outcomes</u> purposeful dyadic communication.

The outcomes are quantifiable, can be criterion referenced, and, in some versions, are machine scoreable.

DyComm employs learners communicating with other learners rather than with a trained test administrator.

DyComm measures communication performance in three different roles: source, receiver and interchange member.

Outcomes are tested across many different persons. The make up of the dyads is infinitely variable.

The communication interchanges are in real time as opposed to off time.

The materials can be used for instruction as well as for testing. They can be used as a teaching-testing system.

Scoring is right-minus-wong. There is no penalty, and no gain, for producing no information. There is a pay-off for producing correct information, and a penalty for producing wrong information.

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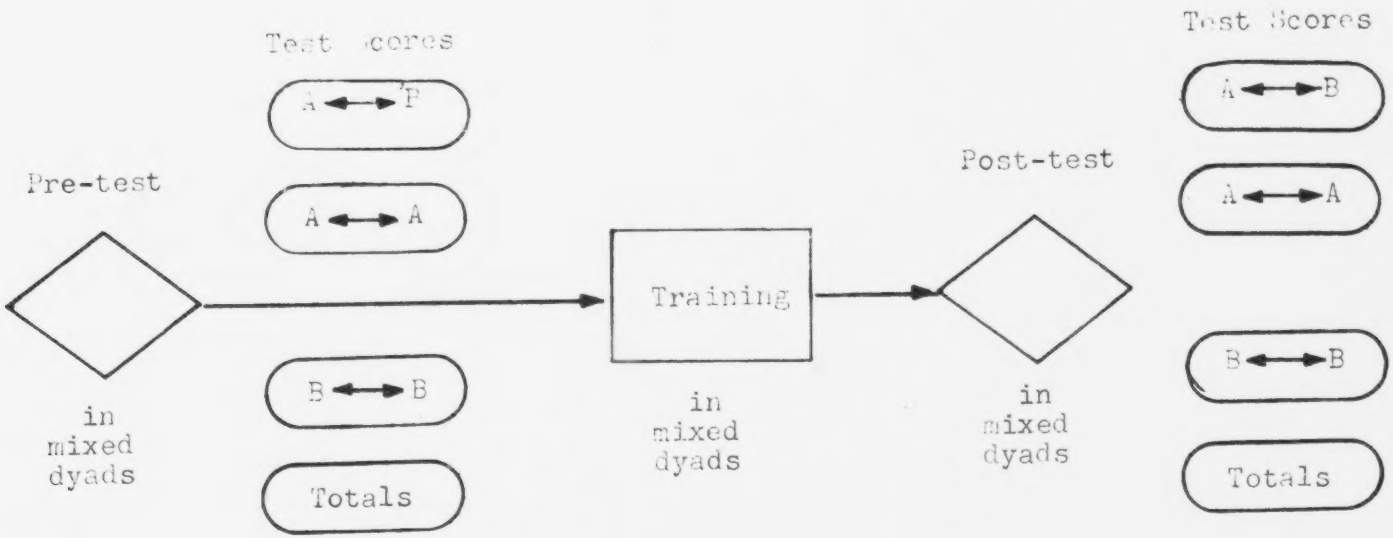
INSTRUCTIONAL RESEARCH DESIGNS USING VERSIONS OF DYCI I. TESTING-TEACHING MATERIALS



Where A and B are different populations, as for example: A = Speakers of English, B = Learners of English; or A = Prospective Teachers, B = Typical Students; etc.

A single administration of the test will yeild four sets of scores, as shown: A's and B's interacting; A's interacting with each other; and B's interacting with each other. Each person gets a total score on the test.

The training is to be evaluated in terms of change scores, pre-test - post-test.

Burton H. Byers
University of Hawaii
Program in Communication